

Daily GLOWBUGS

Digest: V1 #14

via AB4EL Web Digests @ SunSITE

Purpose: building and operating vacuum tube-based QRP rigs

[AB4EL Ham Radio Homepage @ SunSITE](#)

%%%% GlowBugs %%%% GlowBugs %%%% GlowBugs %%%% GlowBugs %%%%

Subject: glowbugs V1 #14

glowbugs

Thursday, April 24 1997

Volume 01 : Number 014

Date: Wed, 23 Apr 1997 10:05:30 -0400 (EDT)

From: leeboo@ct.net (Leon Wiltsey)

Subject: MOTORBOATING

>Date: Wed, 23 Apr 1997 04:30:57 GMT

>Errors-To: ws4s@infoave.net

>Reply-To: leeboo@ct.net

>Originator: glowbugs@sco.theporch.com

>Sender: glowbugs@sco.theporch.com

>Precedence: bulk

>From: leeboo@ct.net (Leon Wiltsey)

>To: Multiple recipients of list <glowbugs@sco.theporch.com>

>Subject: MOTORBOATING

>X-Listprocessor-Version: 6.0 -- ListProcessor by Anastasios Kotsikonas

>X-Comment: Please send list server requests to listproc@sco.theporch.com

>

>Hi Gang

>

>Got a problem, filter cap got here and installed in regen

>power supply. Now the audio section motorboats at mid to

>high volume levels. Have tried everything I know, decoupled

>6sl7 plate supply from 6aq5 and it did not help much.. b+

>now 265 volts with less than .35 ripple. Any ideas?

>

>

>

>Thank the good LORD for all that you have!!!

>

>Leon B Wiltsey jr. (Lee)

>4600 Lake Haven blvd...

>Sebring fl 33872.....

>

>68yr old retired semi disabled senior

>(stroke got my balance and coordination)

>formerly w4kcj & kp4ryb (till I quite) dumb dumb

>waiting for my tech+ lic to arrv 73's
>play keyboard and sing
>music 1920's to 60'
>none of the 80'S- 90'S noise
>
>
>

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Date: Wed, 23 Apr 1997 10:54:53 -0400 (EDT)
From: rdkeys@csemail.cropsci.ncsu.edu
Subject: Re: MOTORBOATING in regen receivers

> >Got a problem, filter cap got here and installed in regen
> >power supply. Now the audio section motorboats at mid to
> >high volume levels. Have tried everything I know, decoupled
> >6sl7 plate supply from 6aq5 and it did not help much.. b+
> >now 265 volts with less than .35 ripple. Any ideas?

Motorboating in regens is caused by the detector pulling into and out of oscillation at an audio rate, or by plain audio stage oscillation. In my hands that has usually been due to a feedback path of some sort between the detector and the audio stages, giving rise to the LF audio oscillation, or just a plain audio amplifier feedback path such as through a power supply.

The plate voltages seem to be high enough to get that oscillation on your set. It does not happen easily on low plate voltages in the 24-48 volt range that I use mostly.

There are several cures for motorboating that folks have used over the ages.

1. Place a swamping resistor across the first audio input choke or transformer. A value of 10K to 100K will usually do the trick. That can be made into a volume control through the use of a potentiometer rather than just a swamping resistor. The value should not be critical, but use the highest value that will suppress motorboating.
2. Check the bypasses on the audio stages. Poor bypasses can lead to oscillation. If there is an audio cathode capacitor and resistor that could be the problem.

3. Decrease plate voltage in the audio stages to around 90 volts and see what happens. If it is stable there, then increase the audio bias and increase the bypassing capacitor values.
4. Increasing the value of coupling capacitance in capacitively coupled stages will sometimes help. It seems to load the audio input down somewhat, making it more stable.
5. Make sure the detector plate RF choke is good. For reasons not exactly clear to me, if that choke is weak or bad, it can lead to motorboating. I am suspecting that it is due to both RF and audio feedback in the detector or combination of detector and audio stages. Remember you can regenerate with RF or AUDIO or BOTH, if you design your circuit correctly. The problem is keeping the RF and AUDIO in the right places.

That is all I can think of right off.

73/ZUT DE NA4G/Bob UP

Date: Wed, 23 Apr 97 11:15:27 EDT
From: jkh@lexis-nexis.com (John Heck)
Subject: Front Panels

Folks,

Last week our Facilities department indicated that they had some "corner fillers" available for folks who had their Unix workstations set in a corner of their desk spaces to allow room for the back of the monitor. Most are positioned that way due to their size. The desks in cubes are just not deep enough to allow setting a full size monitor on it and still have room for the keyboard. Well, on Monday I found such "corner filler" installed, and it's just a heavy guage sheet metal panel that fits across one corner of my desk top. It gives me somewhere to rest my wrists when typing and is pretty nice for that.

What is even nicer is this. It measures 18" high by 22" wide. It has nice rounded corners on the top, and is bent into a box on the bottom to provide a wide edge and a stop, so it spans the corner and doesn't just push clear onto the desk top. =====> It's a really, really, nice black crackle power coat! <===== Every time I look at this thing I see homebrew transmitter, a big one, or about three of these in a relay rack in my shack. I think we get them for about \$15 each, but I don't know where. I think some of you all work in dataprocessing environments so maybe you can come up with a source. I'll keep looking too. These are sure nice panels.

Regards,
John Heck, KC8ETS
1009 Donson Drive
Dayton, Ohio 45429
(513)865-7036(work)
jkh@lexis-nexis.com

Date: Wed, 23 Apr 1997 11:40:52 -0400 (EDT)
From: EWoodman@aol.com
Subject: "Industrial Strength" Regen

Hi Bob,

Been fooling around with regens for a couple weeks now and am about to embark on a project to build an "industrial strength" regen as a station receiver for the glowbuggy stuff. Detector plus one stage of audio. Is it worthwhile to "build big"? I was going to use a big Cardwell 40pf transmitting variable for main tuning, 50 pf 2.5kv mica grid cap, large 2.5 - 3" coil wound with insulated #14 solid wire, and all wiring with the same #14 wire. The thing would be built pretty much like my 160M Hartley. Maybe stick the whole thing in a nice big hardwood box with a heavy aluminum front panel. Do you suppose there is any real benefit to doing this or is it just a waste of good parts? It is obviously better for transmitter construction but.....?

73 Eric KALYRV

Date: Wed, 23 Apr 1997 15:46:51 -0400 (EDT)

From: rdkeys@csemail.cropsci.ncsu.edu

Subject: Re: Regenerative receiver

>

> Dear Prof. Keys:

> As I stated briefly during our landline conversation, I am a
> radio amateur here in Taylor, Tx. who is interested in duplicating a
> modest amateur station of those dark days just before the Munich
> Conference (say, 1935 or so). Along this line, I would like to start work
> on a one-tube regenerative receiver, and perhaps build some sort of
> Hartley exciter later. Ideally I would like it to be a general coverage
> receiver and cover 3-25 MHz or so, probably through the use of plug-in
> coils. I would also like to use a tube that would allow me to have a B+
> voltage of <100 volts, as this would simplify building the power supply.
> There is an outfit that makes vintage scientific instruments who have
> just such a receiver for sale-their asking price is \$265. They feel this
> price justified because they use vintage parts wherever possible. Surely
> if I had a schematic and a little luck scrounging I could put one
> together for somewhat less.

> Are you aware of a schematic for such a radio? All of the ones
> I've found so far (old handbooks and such) are mostly ham-bands
> receivers, and most lack details.

> I appreciate your time very much, and I hope someday to catch you
> on 80.

>

> 73,

> Dan Zabcik, WB5YUZ

Dan..... I (and others) will be glad to help you.

1. You need to get signed up on the Glowbugs mailing list. Send an email to:

Majordomo@www.atl.org

with the one liner message:

subscribe glowbugs youremailaddress yourname yourcall

or:

help

or:

info glowbugs

and that should get you the information you need to get started.

The glowbugs is a group that build and operate OT gear, like you have an interest in. I am forwarding a copy of this email to the listowner and he can set you up.

2. A regenerative receiver of 1 tube is probably not the best idea for general ham use, unless you tend to get on when the bands are a bit quieter than usual. It will work, but tends to be a bit weak on the audio. A 2-tube or 2-stage set with a detector and a single stage of audio is quite good for general use, and I use them myself, quite often.
3. Schematics and info on these things (RX and TX) can be gotten from the glowbugs archives if you can print postscript. If you can't, an SASE with about 4 stamps on it should return several articles, from my archives, and I am sure others will be able to do likewise.
4. Most regenerative receivers will work well for a 5:1 frequency range. Beyond that, different values of parts are required, and should be tailored to the range in which you work. Typically a regen for 160/80/40/30M would be good and a separate one for 20M and above. Most of the ones I build are for 80M only or if I find sufficient plug-in coils for 160/80/40M. If you really want to cover more territory than that, you need to do a little more care in the design of the set, and choose the coils and tuning capacitors carefully to give you the right tuning ranges and bandspread capabilities. Typically, on mine, I use throttle condenser and tickler control, and about a 25pf main tuning capacitor and a few pf of parallel trimmer to set the generic range desired. Then I wind separate coils to suit for each band that I want to receive. It can be done with bandswitching, but good bandswitched arrangements for lots of band coverage is not easy to come by, and is not typical of the 20's and 30's gear of which you have an interest.
5. Good low voltage regenerators do quite well on 24/30/36/48 volts on the plates. I usually run mine on about 30 volts, and use small rechargeable batteries (sealed lead acids of 7 ah size), in groups of 6 or 12 volts and very large wet nicads for filament power. A car battery will work fine for filament power if you use 12v tubes or a pair of 6 volt tubes. Many different types of tubes will work. Among the most common is the ubiquitous 6/12SN7 or 12An7 series tubes. I usually prefer octals for playing, and use period tubes such as the types 76 or '30. '30's are a bit scarce, but the '76's are fairly common in surplus. A better choice for a late 30's set would be the 6J5. In my 1925 detector and one step, I can drop in anything from '01A's to '30's to '76's to 6J5's to 12An7's by putting an adapter in the '01A slot. That works well to conserve the old 4 pin tubes. The nice thing about the 12SN7 is that it will run on a car battery, and has two triodes present so you can make a good detector and one step audio set easily. The 30's era used '19 tubes to do that, and a little later the 6C8 (if my tube memory is correct today).
6. Most importantly, uncouple the regenerative detector as much as possible

to increase selectivity and sensitivity. I often use no antenna on mine for chewing with the locals, and a 5 foot antenna for regional work, and the big outdoor antennas for long-haul work. Remember regens are VERY sensitive, and can be quite selective, properly done.

7. Typical transmitters of the early 30's were self controlled oscillators, with a few xtal controlled sets. In the later 30's, xtal control was used mostly, with a few souls using ECO style vfo's after about 1937. There is a nice Grammer 1934 Hartley Oscillator article in our archives that might be of interest. It works well with a 6SN7 tube in QRP mode.

I will pass this along to the Glowbugs list and maybe some folks will get back with you for further discussion and more information.

The Glowbugs meet nightly on either 7050 or 3579R545 khz at anytime after dark, although generally, lately, it has been 7050 after 0100Z. You are most welcome to join in. Several folks are in TX and LA, and could offer you some info/etc., to help you get started.

Good Luck

Best of Regenerating

73/ZUT DE NA4G/Bob UP

p.s. Glowbugs list folks.... here is another interested ham that wants to hands on some regenerators and Hartley things. Any comments you can forward to him are appreciated.

Date: Wed, 23 Apr 1997 15:50:41 +0100
From: BOB DUCKWORTH <bob@atl.org>
Subject: preselector for regen rx

BABob et al,

I'm jumping the gun here as I've yet to build anything. However, the planning is half the fun and sometimes it's easier if it's planned :-)

Would an active preselector be the next logical addition to a basic det plus audio regen?

- -bob
wb4mnf

Date: Wed, 23 Apr 1997 22:22:48 EDT
From: ac4gt@juno.com (nathan c tart)
Subject: Round Robin test

This is a test at the request of list (manager)
Pls delete.....AC4GT

Date: Wed, 23 Apr 1997 23:49:32 -0500 (CDT)
From: mjsilva@ix.netcom.com (michael silva)
Subject: Re: preselector for regen rx

WB4MNF wrote:

>
>BABob et al,
>
>I'm jumping the gun here as I've yet to build anything.
>However, the planning is half the fun and sometimes it's
>easier if it's planned :-)
>
>Would an active preselector be the next logical addition
>to a basic det plus audio regen?

I'd say yes. A front-end stage will give you antenna isolation (and greatly reduced detector radiation), some selectivity, and perhaps some gain (or, with a cathode gain control, some attenuation). As another alternative, you can make the front-end stage a converter and you get a superhet, providing all the benefits above while eliminating the need to tune the detector.

73,
Mike, KK6GM

Date: Thu, 24 Apr 1997 02:21:14 -0400 (EDT)
From: rdkeys@csemail.cropsci.ncsu.edu
Subject: Re: preselector for regen rx

> BABob et al,
>
> I'm jumping the gun here as I've yet to build anything.
> However, the planning is half the fun and sometimes it's
> easier if it's planned :-)

Jump ditty jump ditty jump.....(:+)}.....

> Would an active preselector be the next logical addition
> to a basic det plus audio regen?
>
> -bob
> wb4mnf

Generally, yes. There is pro and con for it tho.

Pro.... it will help isolate the detector from the antenna, and make detector operation easier, and less subject to coupling and overloading problems.

Con.... it does not increase selectivity very much, nor does it increase gain very much, until you get way up in frequency like 20M and above.

In my hands, I would put more stock in a good second audio stage with some tuned audio filtering transformers first, and then an RF stage second.

Isolation is easy to come by if you have adjustable coupling or minimal coupling. Usual RF stages will tend to overdrive the detector which will actually reduce selectivity and gain, unless they are very loosely coupled. The additional audio shaping from resonant transformers is worth more in my book than the rf stage. Only when you get to two rf stages ahead of the detector will it make much difference --- there the two stages will give a good additional signal boost on the higher bands. But, on the lower bands, ambient noise is the determining factor for receiver sensitivity. The bare detector itself will easily get down the the HF ambient noise floor. So, the only really good thing the RF stage does is provide a relatively constant load for the detector input, which makes the receiver less of a 3-handed tuning operation.

In my book, the second audio would be a better first trade, with the rf stage second.

Sandy or someone did some measurements on a regen receiver for a single stage detector job and a 3 stage RF/DET/AUDIO job, and the fancy one got down to 1.5 uv or so, while the plain one got down to 3 uv or so. That is not much practical difference on 160/80/40M. Maybe they can repost that info for us????

Those are my thoughts.

Bob/NA4G

Date: Thu, 24 Apr 1997 08:55:16 +0000
From: "Brian Carling (Radio G3XLQ / AF4K)" <bry@mnsinc.com>
Subject: Re: Unibits (was Re: Socket mounting hint)

Great - thanks Mike. I've only got one GReenlee - the one for Octal tube sockets (yeah!!) - but I can't see buying a whole lot more of them for the kind of prices they go for now. I will give a look at the items you mentioned.

Bry

On 20 Apr 97 at 19:15, mjsilva@ix.netcom.com spoke about Unibits (was Re: Socket mounting hi and said:

> On 04/20/97 20:06:51 Brian wrote:
> >
> > Say Mike, can you tell us where to buy a UNIBIT these days?
>
> My local Home Depot has "official" Unibits up to 1/2" and 3/4", and
> Greenlee Kwik-Steppers above that (the one I have goes to 1-3/8").
> Otherwise, I've heard electrical supply shops carry them in one
> brand or another.
>
> 73,
> Mike, KK6GM
>
>
>

*** 73 from Radio AF4K / G3XLQ in Gaithersburg, MD USA *

** E-mail to: bry@mnsinc.com *
*** See the great ham radio resources at: *
** <http://www.mnsinc.com/bry/> *

Date: Thu, 24 Apr 1997 12:54:50 -0400 (EDT)
From: leeboo@ct.net (Leon Wiltsey)
Subject: dial restring plus

>To: gb
>From: leeboo@ct.net (Leon Wiltsey)
>Subject: dial restring plus
>Cc: DIAL STRING PLUS
>
>>To: BA
>>From: leeboo@ct.net (Leon Wiltsey)
>>Subject: dial restring plus
>>
>>Hi Gang Lee here
>>
>>Need some info saw postings on this subject awhile
>>back so someone knows all about it.
>>Received the receiver I bought from Bighorn, sx101 , it was pretty much as he
>>described it. am now trying to find out how long it has been since it was
running.
>>But thats another subject, what I need to know is where do
>>you get dial cord and what is a good replacement type cord to use?
>>
>>Ok since I got your attention I will ask the second question.
>>in the likely event the rec has not had power to it for years,
>>what is the best way to fire it up? I do not have a variac, but thought
>>I might put a 150 watt bulb in series with the line voltage to
>>ease the shock of all those volts hitting it after a long while, any
suggestions
>>will be appreciated.
>>

Thank the good LORD for all that you have!!!

Leon B Wiltsey jr. (Lee)
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Sebring fl 33872.....

68yr old retired semi disabled senior
(stroke got my balance and coordination)
formerly w4kcj & kp4ryb (till I quite) dumb dumb
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End of glowbugs V1 #14

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Created by **Steve Modena, AB4EL**
Comments and suggestions to **modena@SunSITE.unc.edu**
